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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,721	10/31/2003	Philip J. Pietraski	I-2-0433.1US	1573

24374   7590   11/26/2008
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EXAMINER
LAM, DUNG LE

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
11/26/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *7/24/08*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-5,12-16 and 32-36* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) *1-5,12-16 and 32-36* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.   Claim(s) **1, 12 and 32** are rejected under 35 U.S.C. 103(a) being unpatentable

over **Qui** (US Pub. No. 20020097686) in view of **Gaal** (US 2004/0203475)

2.   Referring to claim **1**, **Qui** teaches a method for providing feedback regarding the

quality of a communication channel which is transmitted between a transmitter and a

receiver ([0014]); the method comprising:

- receiving a downlink data communication ([0016]);

- performing at least one current quality measurement on said downlink data

  communication to determine the current quality of said downlink data channel

  (obtain CSI, [0016]);

- deriving, based on said performing step, a predictive channel quality indication (CQI)

  estimating the future quality of said downlink data channel on <u>a per multiple slots</u>

  <u>basis</u> ([19, 25,22]) and

- transmitting said predictive CQI wherein said predictive CQI includes at least one of a recommended transport block size, modulation format, or number of codes ([20-21, 25, 26, 45]).

Qui teaches obtaining measurements on a per multiple time slots basis. However he does not on a time slot basis. In an analogous art, **Gaal** teaches obtaining channel quality on a per time slot basis (C/I ratio estimate can be performed in every time slot, [25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Qui's teaching of deriving a predictive CQI and **Gaal's** measuring channel of the quality on a time slot basis to increase the response time to signal fading and faster adjustment can be made to improve signal quality.

3.   Referring to **claim 12**, **Qui** teaches a method for providing channel quality measurements on a downlink communication ([0014]); the method comprising:

- monitoring said downlink communication channel at said receiver ([16]);

- performing at least one current measurement on said downlink communication channel to determine the current quality of said downlink data channel ([0016]);

- deriving, based on said performing step, a predictive channel quality indication (CQI) estimating the future quality of said downlink data channel ([0019, 25]);   and

- transmitting said predictive CQI from said receiver to said transmitter wherein said predictive CQI includes at least one of a recommended transport block size, modulation format, or number of codes ([20-21, 25, 26, 45]), a per multiple slots basis ([19, 25,22]) and

Qui teaches obtaining measurements on a per multiple time slots basis. However

he does not on *a* time slot basis. In an analogous art, **Gaal** teaches obtaining channel

quality on a per time slot basis (C/I ratio estimate can be performed in every time slot,

[25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the

art at the time of the invention to modify Qui's teaching of deriving a predictive CQI and

Gaal's measuring channel of the quality on a time slot basis to increase the response

time to signal fading and faster adjustment can be made to improve signal quality.

4.   Referring to **claim 32**, **Qui** teaches a method for providing feedback regarding

the quality of a communication channel which is transmitted between a transmitter and

a receiver ([14]);

- the method comprising: receiving a downlink data communication ([0016]); receiving
  a said pilot channel communication ([0016]);

- performing at least one current quality measurement on said downlink data
  communication and said pilot channel communication to determine the current
  quality of said downlink data channel (0016);

- deriving, based on said performing step, a predictive channel quality indication (CQI)
  estimates the future quality of said downlink data channel ([19, 25]) a per multiple
  slots basis ([19, 25,22]) and

- transmitting said predictive CQI from said receiver to said transmitter wherein said
  predictive CQI includes at least one of a recommended transport block size,
  modulation format, or number of codes ([20-21, 25, 26, 45]).

Qui teaches obtaining measurements on a per multiple time slots basis. However

he does not on *a* time slot basis. In an analogous art, **Gaal** teaches obtaining channel

quality on a per time slot basis (C/I ratio estimate can be performed in every time slot,

[25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the

art at the time of the invention to modify Qui's teaching of deriving a predictive CQI and

Gaal's measuring channel of the quality on a time slot basis to increase the response

time to signal fading and faster adjustment can be made to improve signal quality.

5.   Claim(s) **1, 12 and 32** are further rejected under 35 U.S.C. 103(a) being

unpatentable over **Balachandran** (EP0899906) in view of **Raitola** (US 7,336,629)

6.   Referring to claim **1**, **Balachandran** teaches a method for providing feedback

regarding the quality of a communication channel which is transmitted between a

transmitter and a receiver ([0014]); the method comprising:

- receiving a downlink data communication ([0040]);

- performing at least one current quality measurement on said downlink data
  communication to determine the current quality of said downlink data channel
  ([0016, 40]);

- deriving, based on said performing step, a predictive channel quality indication (CQI)
  estimating the future quality of said downlink data channel ([30]) and

- transmitting said predictive CQI wherein said predictive CQI includes at least one of
  a recommended transport block size ([30, 40]), modulation format, or number of
  codes.

Balachandran teaches making measurements on a per multiple time slots basis but not on *a* time slot basis. In an analogous art, **Raitola** teaches making channel measurements on a per time slot basis (C3 L37-50). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Qui's teaching of deriving a predictive CQI on a time slot basis as taught by Raitola to increase the response time to signal fading and faster adjustment can be made to improve signal quality (C2 L10-25).

- Regarding claims **12 and 32**, they are claims that have the same limitations as claims 1, thus are rejected for the same reasons.

7.   Claims **2-3, 13-14 and 33-34** are rejected under 35 USC 103(a) as being unpatentable **Qui and Gaal in view of Bergel** (U.S. Publication No. 2004/0142698).

8.   Referring to claims **2, 13 and 33**, **Qui** does not explicitly teach including storing said at least one current quality measurement (0026 and Figure 4B). In an analogous art, **Bergel** teaches the step of storing at least one current quality measurement (S120, [0048, 0049] and Figure 4B). Therefore, it would have been obvious for one of ordinary skill in the art skill in the art at the time of the invention was made to combine the admitted prior art's teaching of deriving a predictive CQI with Bergel's teaching of storing at least one current quality measurement to compare the past and present values to provide a more accurate estimate value.

9.   Referring to claims **3, 14 and 34**, admitted prior art of applicant further teaches the method of claims 1/12/32 respectively but does not explicitly teach the step of

retrieving a stored measurement in deriving the predictive CQI. In an analogous art,

Bergel said deriving step further includes retrieving at least one stored quality

measurement and utilizing said at least one stored quality measurement and said at

least one current quality measurement to derive said predictive CQI (S120, [0048, 0049]

and Figure 4B). Therefore, it would have been obvious for one of ordinary skill in the art

skill in the art at the time of the invention was made to combine the admitted prior art's

teaching of deriving a predictive CQI with Bergel's teaching of deriving step predicts the

future quality of the downlink communication channel to provide an improved

compensation technique for transmission over a channel (0010).

10.   Claims **4, 15 and 35** are rejected under 35 USC 103(a) as being unpatentable

over **Qui , Gaal and Bergel** and further in view of Koorapaty et al. (U.S. Patent

Publication No. 2003/0129992, hereinafter **Koorapaty**).

11.   Referring to claims **4, 15 and 35**, **Qui, Gaal and Bergel** teach the limitations of

claims 4,15 and 35, but do not teach storing predicted values. **Koorapaty** et al. teaches

storing predicted values [0010]. Therefore at the time the invention was made, it would

have been obvious to a person of ordinary skill in the art to combine the teaching of

Koorapaty of storing predicted values to compare the predicted values with the

measured values ([0012]).

12.   Claims **5,16 and 36** are rejected under 35 USC 103(a) as being unpatentable

over **Qui** in view of Bruckert et al. (U.S. Patent No. 5,305,468, hereinafter **Bruckert**)

13.   Referring to claims 5, 16 and 36, **Qui and Gaal** teach the limitations of claims 1,

12 and 32, but do not teach wherein said deriving step utilizes a linear predictive

algorithm to derive the predicted value. In an analogous art, **Bruckert** et al. teaches

wherein said deriving step utilizes a linear predictive algorithm to derive the predicted

value (Column 4, Lines 42-45). Therefore, it would have been obvious for one of

ordinary skill in the art at the to combine the teaching of **Qui and Gaal** with the teaching

of Bruckert et al. wherein said deriving step utilizes a linear predictive algorithm to

derive the predicted value to provide a more accurate power control command (Column

1, Lines 47-49).

Response to Arguments

Applicant's arguments with respect to claims 1-5, 12-16 and 32-3 have been

considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in
this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP
§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37
CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within
TWO MONTHS of the mailing date of this final action and the advisory action is not
mailed until after the end of the THREE-MONTH shortened statutory period, then the
shortened statutory period will expire on the date the advisory action is mailed, and any
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later
than SIX MONTHS from the date of this final action.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Paul Harper can be reached on (571) 272-7605. The fax phone number for
the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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